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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS

Appellants:	Solum	**APPEAL BRIEF**
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Examiner	David E. Odland	
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Title: REDUCED POWER CONSUMPTION IN A COMMUNICATION DEVICE		

Table of Contents

1. Real Party in Interest 2
2. Related Appeals and Interferences 2
3. Status of the Claims 2
4. Status of Amendments 2
5. Summary of the Invention 2
6. Issues Presented for Review 5
7. Grouping of Claims 6
8. Argument 6
A. Applicable Law 6
B. Application to the Rejections 7
1. Claims 26 and 28 7
2. Claims 1, 3, 5, 20, and 22 8
3. Claims 24 and 25 11
4. Claims 17 and 19 13
5. Claims 4, 6, 8-12, 14, 15, and 21 14
6. Claim 23 16
7. Claim 13 16
8. Claim 16 17
9. Claim 27 18
Appendix 1 19

1. Real Party in Interest

The real party in interest in the above-captioned application is the assignee ADC Telecommunications, Inc.

2. Related Appeals and Interferences

There are no other appeals or interferences known to Appellants which will have a bearing on the Board's decision in the present appeal.

3. Status of the Claims

Claims 1, 3-6, 8-17 and 19-28 are pending in the application.

4. Status of Amendments

No amendments have been made after the Final Office action.

5. Summary of the Invention

A summary of the embodiments of the invention is provided in this Section of the Appeal Brief with reference to the Specification and Figures. It is understood that these references are provided by way of example and that other support for the various embodiments is found throughout the specification and Figures. In one embodiment, a method for controlling power consumption in a communication device is provided. One example of the method is shown and described with respect to Figures 1 and 3 of the Application. The method includes powering down at least a portion of a receiver of the communication device for a selected period of time in response to an indication from a data source that a data transmission has ended (Specification, p. 6, lines 10-19 and p. 7, line 25 to p. 8, line 2), powering up the at least a portion of a receiver to detect incoming data when the selected period of time expires (Specification, p. 8, lines 8-10), and receiving one or more packets when incoming data is detected (Specification, p. 8, lines 12-14). The at least a portion of the receiver is powered up in time to allow detection of an

attempted retransmission of a packet (Specification, p. 5, lines 9-12).

In another embodiment, a communication device is provided. One example of the communication device is shown and described with respect to Figure 1. This embodiment of the communication device includes a transmitter (124) that transmits data, a receiver (110) that receives data over a communications link (106), a signal processing circuit (126), coupled to the transmitter and receiver, to prepare data for transmission and to process data received by the receiver, and a control circuit (108), responsive to the signal processor, that selectively powers at least a portion of the receiver down for a period of time (Specification, p. 4, lines 21-25) and that powers up the at least a portion of a receiver to check for incoming data when the selected period of time expires (Specification, p. 4, lines 25-27), wherein the control circuit includes a counter (130) that is substantially synchronized with a counter (122) at the source of the incoming data in response to an indication from the data source that a data transmission has ended (Specification, p. 6, lines 13-17 and p. 7, line 27 to p. 8, line 2.)

In another embodiment, a communication network (100) is provided. The communication network includes a head end communication device (102), at least one remote communication device (104) that is communicatively coupled to the head end communication device, and wherein each of the at least one remote communication device includes a control circuit (108) that powers down a receiver of the at least one remote communication device for a selected period of time (Specification, p. 4, lines 21-25) and that powers up the receiver of the at least one remote communication device to check for incoming data from the head end communication device when the selected period of time expires (Specification, p. 4, lines 25-27), wherein the control circuit includes a counter (130) that is substantially synchronized with a counter (122) at the source of the incoming data in response to an indication from the head end communication device that a data transmission has ended (Specification, p. 6, lines 13-17 and p. 7, line 27 to p. 8, line 2.)

In another embodiment, a power control circuit (108) for a communication device (104) is provided. The power control circuit includes a counter (130) that establishes a selected time

period for powering down a receiver (110) of the communication device, and a processor (128), coupled to the counter, that is programmed to control the reset of the counter, to power down the receiver, and to power up the receiver to check for incoming data packets transmitted by another communication device when the counter indicates that the selected time period has expired. The counter establishes a time period that is sufficient to allow detection of a data packet that is retransmitted by the other communication device when no acknowledgment signal is received by the other communication device (Specification, p. 5, lines 9-12).

In another embodiment, a method of power management for a communication system that includes at least one head end communication device and at least one remote communication device is provided. The method includes setting a counter at a remote unit to a predetermined power down period (Specification, p. 7, lines 26-28), and checking for an incoming transmission after the power down period has expired (Specification, p. 8, lines 3-10). If an incoming transmission is received, resetting the counter in response to an indication from the head end communication device that the transmission has ended (Specification, p. 8, lines 14-17) and if no incoming transmission is received, resetting the counter to the predetermined power down period (Specification, p. 8, lines 18-26).

In another embodiment, a method for controlling power consumption in a remote communication device in signal communication with a head end communication device is provided. The method includes starting a counter for the remote communication device to time a predetermined power down period (Specification, p. 7, lines 26-28), powering down the remote communication device for the predetermined power down period (Specification, p. 8, lines 3-10), powering up the remote communication device to check for any incoming data (Specification, p. 8, lines 8-10), and starting a counter for the head end communication device to time for substantially the same predetermined power down period after completion of a data transmission to the remote (Specification, p. 7, line 28 to p. 8, line 2).

In another embodiment, a method for controlling power consumption in a remote communication device in signal communication with a head end communication device is

provided. The method includes starting a counter at the remote communication device to count for a predetermined power down period after the remote unit has received a transmission of a final packet or other indication that transmission from the head end communication device has come to an end (Specification, p. 7, line 28 to p. 8, line 2), and starting a counter at the head end communication device at substantially the same time as the remote communication device counter is set, wherein a substantial synchronization is maintained between the counters (*Id.*).

A method for controlling power consumption in a remote packet communication device in signal communication with a head end packet communication device is provided. The method includes setting a power down timer for the remote packet communication device to a power down period so that the remote packet communication device will power up again in time to detect a retransmission of data from the head end packet communication device (Specification, p. 5, lines 9-12).

6. Issues Presented for Review

A. Whether claims 26 and 28 are allowable over US Patent No. 5,764,734 (Medendorp)?

B. Whether claims 1, 3, 5, 20, and 22 are allowable over Medendorp in view of US Patent No. 6,151,334 (Kim)?

C. Whether claims 24 and 25 are allowable over Medendorp in view of US Patent No 5,392,287 (Tiedemann)?

D. Whether claims 17 and 19 are allowable over Medendorp in view of US Patent No. 4,633,462 (Stifle)?

E. Whether claims 4, 6, 8-12, 14, 15, and 21 are allowable over Medendorp in view of Kim and further in view of Tiedemann?

F. Whether claim 23 is allowable over Medendorp in view of Kim and further in view of US Patent No. 5,440,562 (Cutler)?

G. Whether claim 13 is allowable over Medendorp in view of Kim and Tiedemann

and further in view of US Patent No. 5,799,069 (Weston)?

H. Whether claim 16 is allowable over Medendorp in view of Kim and Tiedemann and further in view of Stifle?

I. Whether claim 27 is allowable over Medendorp in view of US Patent No. 5,740,540 (Emmermann)?

7. Grouping of Claims

Each of claims 1, 3-6, 8-17, and 19-28 stand or fall on their own merits for reasons detailed below. Each of the claims is patentably distinct for the reasons detailed below.

8. Argument

A. Applicable Law

35 U.S.C.§ 103 provides in relevant part:

Conditions for patentability; non-obvious subject matter.

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

"The ultimate determination . . . whether an invention is or is not obvious is a legal conclusion based on underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness." *In re Dembiczak*, 175 F.3d 994, 998, 50 USPQ2d 1614, 1616 (1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966)).

When applying 35 U.S.C. §103, the claimed invention must be considered as a whole; the references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination; the references must be viewed without the benefit of

impermissible hindsight vision afforded by the claimed invention and a reasonable expectation of success is the standard with which obviousness is determined. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2143.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. MPEP 2143 citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

B. Application to the Rejections

1. Claims 26 and 28

Claims 26 and 28 were rejected under 35 USC § 103(a) as being unpatentable over Medendorp. Reversal of the rejection is respectfully requested.

Claim 26 is directed to a method for controlling power consumption in a remote packet communication device. The method requires "setting a power down timer for the remote packet communication device to a power down period so that the remote packet communication device will power up again in time to detect a retransmission of data from the head end packet communication device." The Examiner recognizes that Medendorp does not teach "powering up in time to allow detection of an attempted retransmission of a packet." However, the Examiner asserts that this would have been obvious to select such a duration to allow proper communication. Applicant respectfully traverses this assertion.

Medendorp purports to achieve power savings by monitoring a control channel for a message indicating that a call is waiting for the receiver. Col. 3, lines 23-29. Presumably, the

duration of the timer in Medendorp is set based on the time slot of the control channel used to indicate a call is waiting for the receiver. Col. 4, line 56- Col. 5, line 22. Medendorop does not power up its receiver to listen to the data channel unless the control channel indicates that a call is waiting. *Id.* Thus, one of ordinary skill in the art would not be lead to set the duration of a power down timer to allow detection of retransmission of data since, in Medendorp, the counter used to control power down is related to signaling on a control channel and not used to assure reception of data on the data channel. Therefore, claim 26 is not obvious in light of Medendorp.

Claim 28 depends from claim 26 and thus is also allowable.

2. Claims 1, 3, 5, 20, and 22

Claims 1, 3, 5, 20, and 22 were rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Kim et al. (U.S. Patent No. 6,151,334). Applicant respectfully requests reversal of this rejection.

Claim 1 is directed to a method for controlling power consumption in a communication device. The method includes powering down at least a portion of a receiver of the communication device for a selected period of time in response to an indication from a data source that a data transmission has ended, powering up the at least a portion of a receiver to detect incoming data when the selected period of time expires, and receiving one or more packets when incoming data is detected. The at least a portion of the receiver is powered up in time to allow detection of an attempted retransmission of a packet.

The cited references, alone or in combination, fail to teach or suggest this claimed method for controlling power consumption. The Examiner recognizes that Medendorp does not teach or suggest powering down a receiver in response to an indication from a data source that a transmission has ended. The Examiner attempts to fill this gap with Kim. The Examiner asserts that Kim discloses a system wherein the receiver powers down when it receives a particular code word from the transmitter. Applicant respectfully traverses the Examiner's assertions with respect to Kim.

Specifically, Applicant respectfully notes that nothing in Kim teaches powering down a receiver in response to a code word from the transmitter. Kim simply refers to entering a "power down mode" or "idle state" when the code is received. Kim does not further define this state. Significantly, Kim does not indicate that the receiver itself is powered down. From the context of Kim, it is more likely that other circuitry associated with the receiver is powered down. In fact, Kim describes another signal referred to as a "power up code." See, e.g., Fig. 3. If the power down code turns the receiver off, how would the receiver receive the power up code? No such mechanism is described in Kim. The existence of this power up code, thus, indicates that the power down code is not used to power down the receiver. Therefore, the combination of Kim and Medendorp is not proper and further, the combination of Kim and Medendorp, does not teach or suggest the claimed powering down of at least a portion of the receiver in response to an indication from the data source that a data transmission has ended.

In the Final Office Action, the Examiner backs off from the position that Kim teaches powering down a receiver when the Examiner notes "even of Kim did not disclose a 'receiver' being powered down, this limitation is anticipated by the primary reference." Final Office Action, p. 18, Section 12. Applicant respectfully asserts that the Examiner's reliance on the primary reference for the teaching of turning off the receiver, in fact, argues against the combination of the references, since, if Kim does not teach turning off the receiver, there is no motivation to combine the references.

In the Final Office Action, the Examiner further asserts that the removing unit is a "receiver" and since the removing unit powers up it must "inherently be able to receive such a signal." Applicant respectfully traverses this assertion. Applicant respectfully asserts that the thing that is inherent in the reference is that the receiver is not powered down since it is able to receive the signal and the reference does not describe any of the steps outlined in the present application to assure that the signal is received.

Finally, in the Final Office Action, the Examiner argued that Kim's power down mode is equivalent to the claimed powering down of at least a portion of the receiver because "there are

no limitations of the claims that would distinguish" the claims from Kim's power down mode. Applicant respectfully traverses this assertion. Applicant respectfully asserts that the claim 1 distinguishes the power down mode of Kim because claim 1 calls for "powering down at least a portion of the receiver," "powering up the at least a portion of a receiver," and "wherein powering up the at least a portion of a receiver comprises powering up in time to allow detection of an attempted retransmission of a packet." Applicant respectfully asserts that these limitations distinguish claim 1 from the power down mode of Kim.

Further, the Examiner asserts the same argument with respect to claim 1 as discussed above with respect to claim 26 with respect to the retransmission of packets. Applicant incorporates the arguments presented above with respect to Claim 26 herein with respect to claim 1. Therefore, claim 1 is not obvious in view of the cited references.

Claims 3 and 5 depend from claim 1 and, as such, are also allowable.
Further, claim 5 calls for adds other limitations not taught or suggested by the cited art. Specifically, the Examiner argues that Medendorp teaches the elements of claim 5 since data is checked for a again following another power down period. However, this misinterprets the limitations of claim 5. Claim 5 calls for powering up the receiver, checking for incoming data, and, when no data is detected, checking for incoming data without requiring a powering down during this "another selected time period." Since this is not taught or suggested by the references, alone or in combination, claim 5 is also allowable.

Claim 20 is directed to a method of power management for a communication system that includes at least one head end communication device and at least one remote communication device. The method includes setting a counter at a remote unit to a predetermined power down period, and checking for an incoming transmission after the power down period has expired. If an incoming transmission is received, resetting the counter in response to an indication from the head end communication device that the transmission has ended and if no incoming transmission is received, resetting the counter to the predetermined power down period.

As with claim 1, the combination of the references does not teach or suggest "resetting

the counter in response to an indication from the head end communication device that the transmission has ended." Therefore, claim 20 is allowable over the cited art.

Claim 22 further adds that the power down period is set to allow reception of retransmitted data. For the reasons provided above, the art, alone or in combination, fails to teach or suggest the limitation of claim 22 with respect to retransmission of data. Therefore claim 22 is also allowable.

3. Claims 24 and 25

Claims 24 and 25 were rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Tiedemann et al. (U.S. Patent No. 5,392,287). Applicant respectfully requests reversal of the rejection.

Claim 24 is directed to a method for controlling power consumption in a remote communication device in signal communication with a head end communication device. The method includes starting a counter for the remote communication device to time a predetermined power down period, powering down the remote communication device for the predetermined power down period, powering up the remote communication device to check for any incoming data, and starting a counter for the head end communication device to time for substantially the same predetermined power down period after completion of a data transmission to the remote.

The Office acknowledges that Medendorp fails to teach or suggest synchronizing the counter with a counter disposed at the source of the incoming data. The Office however cites Tiedemann, col. 4 lines 17-33. Tiedemann fails to teach or suggest synchronizing the counter with a counter disposed at the source of the incoming data to time for substantially the same power down time period.

Respectfully, the Office has failed to provide a prima facie case of obviousness. First, nothing in Tiedemann or any other reference of record makes up for the deficiencies of Medendorp. Tiedemann discusses a system where a synchronization is maintained by a pilot signal transmitted on a separate pilot channel. According to Tiedemann, a receiver may realign

its timing by synchronizing to the pilot signal. Col. 2 line 33-40; col. 6, lines 17-23 and col. 6, lines 62-68. There is no teaching or suggestion in Tiedemann or any other reference of record of synchronizing the counter with a counter disposed at the source of the incoming data to time for substantially the same power down period.

Second, there is no legally sufficient motivation to combine the references. In support of the argument that the references may be combined, the Office has provided only a general statement to the effect that synchronization alleviates timing problems between receivers and transmitters (Office action at page 8). As noted, mere synchronization between receivers and transmitters is not what is called for by the claimed invention. Obviousness with respect to the claimed invention as a whole must be shown and the teaching or suggestion to make the claimed combination must found in the prior art, and not based on reading of applicant's disclosure, MPEP §§ 2141, 2142. The general statement provided by the Office is legally insufficient and points up another difficulty in combining the references: there is simply no need in Mendendorp for the synchronization discussed in Tiedemann. The Office bears the initial burden of showing the desirability for the combination not mere feasibility. This burden has not been met. Thus, for the foregoing additional reasons, respectfully, claim 24 is allowable.

In the Final Office Action, the Examiner attempts to fill the gap in the motivation to combine the references. Final Office Action, p. 20-21. Not surprisingly, the Examiner's alleged motivation is provided without any reference to either reference. There is simply nothing in the references that teaches that Medendorp has a problem that could benefit from the teachings of Tiedemann. Therefore, the combination of the references is not proper.

Claim 25 is directed to a method for controlling power consumption in a remote communication device in signal communication with a head end communication device. The method includes starting a counter at the remote communication device to count for a predetermined power down period after the remote unit has received a transmission of a final packet or other indication that transmission from the head end communication device has come to an end, and starting a counter at the head end communication device at substantially the same

time as the remote communication device counter is set, wherein a substantial synchronization is maintained between the counters.

The cited art, alone or in combination, fails to teach or suggest the claimed invention of claim 25 for the reasons provided above with respect to claim 24 with respect to the combination of Medendorp and Tiedemann.

4. Claims 17 and 19

Claims 17 and 19 were rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Stifle et al. (U.S. Patent No. 4,633,462). Applicant respectfully requests reversal of the rejection.

Claim 17 is directed to a power control circuit for a communication device. The power control circuit includes a counter that establishes a selected time period for powering down a receiver of the communication device, and a processor, coupled to the counter, that is programmed to control the reset of the counter, to power down the receiver, and to power up the receiver to check for incoming data packets transmitted by another communication device when the counter indicates that the selected time period has expired. The counter establishes a time period that is sufficient to allow detection of a data packet that is retransmitted by the other communication device when no acknowledgment signal is received by the other communication device.

The cited references, alone or in combination, fail to teach or suggest the invention of claim 17. Specifically, the Examiner acknowledges that Medendorp fails to teach powering up in time to receive a retransmitted packet. For the reasons discussed above, this limitation is not taught or suggested by the cited references, alone or in combination.

Further, the Examiner acknowledged that Medendorp fails to teach retransmission of packets when no acknowledgement is received. The Examiner cites Stifle for the teaching that when a head end does not receive an acknowledgement, the head end retransmits the packet. Further indicated that it would have been obvious to one of ordinary skill in the art to add the

retransmission protocol of Stifle to Medendorp because it would allow data that would have been lost to be retransmitted thereby increasing the reliability of the system. Applicant respectfully traverses this rejection.

The claim limitation at issue with respect to Stifle calls for "the counter establishes a time period that is sufficient to allow detection of a data packet that is retransmitted . . . when no acknowledgement signal is received." This limitation is not directed to the retransmission of an unacknowledged packet per se. Rather, the crux of this limitation calls for the counter to allow sufficient time to receive a retransmission of an unacknowledged packet. There is no teaching or suggestion in either reference, alone or in combination, that is directed to establishing a period of a counter to allow for detection of a retransmission of an unacknowledged packet. Therefore, claim 17 is allowable.

Claim 19 depends from claim 17 and thus is also allowable.

5. Claims 4, 6, 8-12, 14, 15, and 21

Claims 4, 6, 8-12, 14, 15, and 21 were rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Kim et al. (U.S. Patent No. 6,151,334) and further in view of Tiedemann et al. (U.S. Patent No. 5,392,287). Applicant respectfully requests reversal of the rejection.

Claim 4 depends from claim 1. The arguments for the allowability of claim 1 are incorporated here. Further, claim 4 calls for synchronizing counters. The Examiner asserts that this limitation is met by the addition of Tiedemann with the references cited against claim 1. Applicant asserts that the combination of Tiedemann with Medendorp and Kim does not render claim 1 obvious for the reasons described above with respect to claims 24 and 25.

Claim 6 is directed to a communication device. The communication device includes a transmitter that transmits data, a receiver that receives data over a communications link, a signal processing circuit, coupled to the transmitter and receiver, to prepare data for transmission and to process data received by the receiver, and a control circuit, responsive to the signal processor,

that selectively powers at least a portion of the receiver down for a period of time and that powers up the at least a portion of a receiver to check for incoming data when the selected period of time expires, wherein the control circuit includes a counter that is substantially synchronized with a counter at the source of the incoming data in response to an indication from the data source that a data transmission has ended.

Again, the Examiner indicates that Medendorp does not teach a powering down the receiver in response to an indication that the transmission has ended. The Examiner relies on Kim for this teaching. For the reasons identified above, the references, alone or in combination, fail to meet this limitation of the claim. Further, the Examiner indicates that Medendorp does not teach synchronizing a counter with a counter disposed at a source. The Examiner relies on Tiedemann to fill this gap. For the reasons stated above, none of the references, alone or in combination, meet this limitation of the claim.

Claims 8, 9, 10 and 11 depend from claim 6 and are thus also allowable. Further, with respect to claim 11, the Examiner asserts that it would have been obvious in light of Medendorp to power up the receiver for enough time to detect retransmissions. Applicant respectfully traverses this assertion for the reasons identified above.

Claim 12 is directed to a communication network. The communication network includes a head end communication device, at least one remote communication device that is communicatively coupled to the head end communication device, and wherein each of the at least one remote communication device includes a control circuit that powers down a receiver of the at least one remote communication device for a selected period of time and that powers up the receiver of the at least one remote communication device to check for incoming data from the head end communication device when the selected period of time expires, wherein the control circuit includes a counter that is substantially synchronized with a counter at the source of the incoming data in response to an indication from the head end communication device that a data transmission has ended.

Again, the Examiner indicates that Medendorp does not teach a powering down the

receiver in response to an indication that the transmission has ended. The Examiner relies on Kim for this teaching. For the reasons identified above, the references, alone or in combination, fail to meet this limitation of the claim. Further, the Examiner indicates that Medendorp does not teach synchronizing a counter with a counter disposed at a source. The Examiner relies on Tiedemann to fill this gap. For the reasons stated above, none of the references, alone or in combination, meet this limitation of the claim.

Claims 14 and 15 depend from claim 12 and are thus also allowable.

Claim 21 depends from claim 20 and adds the limitation "setting a counter at the head end device to the predetermined power down period upon sending an indication that a transmission to the remote communication device has ended." Again, the Examiner indicates that Medendorp does not teach a powering down the receiver in response to an indication that the transmission has ended. The Examiner relies on Kim for this teaching. For the reasons identified above, the references, alone or in combination, fail to meet this limitation of the claim.

6. Claim 23

Claim 23 was rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Kim et al. (U.S. Patent No. 6,151,334) and further in view of Cutler, Jr. (U.S. Patent No. 5,440,562). Applicant respectfully requests reversal of the rejection.

Claim 23 depends from claim 21 and further specifies "providing a delay to account for timing variations between the counter at the remote unit and the counter at the head end unit. Applicant respectfully asserts that claim 23 is not obvious in view of the cited references, alone or in combination, at least for the reasons identified above with respect to claims 20 and 21.

7. Claim 13

Claim 13 was rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Kim et al. (U.S. Patent No. 6,151,334) and Tiedemann et

al. (U.S. Patent No. 5,392,287) and further in view of Weston et al. (U.S. Patent No. 5,799,069). Applicant respectfully requests reversal of the rejection.

Claim 13 depends from claim 12 and further specifies that "each of the at least one remote communication device is powered over the connection between the head end communication device and the at least one remote communication device." Applicant respectfully asserts that claim 13 is not obvious in view of the cited references, alone or in combination, at least for the reasons identified with respect to claim 12.

8. Claim 16

Claim 16 was rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Kim et al. (U.S. Patent No. 6,151,334) and Tiedemann et al. (U.S. Patent No. 5,392,287) and further in view of Stifle et al. (U.S. Patent No. 4,633,462). Applicant respectfully requests reversal of the rejection.

Claim 16 depends from claim 12 and further specifies that "the head end communication device transmits data with a protocol that allows for retransmission of data that is not acknowledged by the at least one remote communication device." Applicant respectfully asserts that claim 16 is not obvious in view of the cited references, alone or in combination, at least for the reasons identified with respect to claim 12.

9. Claim 27

Claim 27 was rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Emmermann (U.S. Patent No. 5,740,540). Applicant respectfully requests reversal of the rejection.

Claim 27 depends from claim 26 and further specifies that "wherein the retransmission of data comprises a ring signal." Applicant respectfully asserts that claim 27 is not obvious in view of the cited references, alone or in combination, at least for the reasons identified with respect to claim 26.

Respectfully submitted,

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Appendix 1

The Claims on Appeal

1. (Previously Presented) A method for controlling power consumption in a communication device, the method comprising:

powering down at least a portion of a receiver of the communication device for a selected period of time in response to an indication from a data source that a data transmission has ended;

powering up the at least a portion of a receiver to detect incoming data when the selected period of time expires;

receiving one or more packets when incoming data is detected, and

wherein powering up the at least a portion of a receiver comprises powering up in time to allow detection of an attempted retransmission of a packet.

Claim 2 (Canceled)

3. (Original) The method of claim 1, wherein powering down the at least a portion of a receiver for a selected period of time comprises setting and decrementing a counter.

4. (Original) The method of claim 3, and further comprising synchronizing the counter with a counter disposed at a source of the incoming data.

5. (Original) The method of claim 1, wherein powering up the at least a portion of a receiver to check for incoming data comprises:

powering up the receiver;

checking for incoming data;

when no data is detected, checking for incoming data after another selected period of time;

when incoming data is detected, processing the data; and

when no incoming data is detected or a last data message is received, powering down the receiver for a selected period of time.

6. (Previously Presented) A communication device, comprising:

a transmitter that transmits data;

a receiver that receives data over a communications link;

a signal processing circuit, coupled to the transmitter and receiver, to prepare data for transmission and to process data received by the receiver; and

a control circuit, responsive to the signal processor, that selectively powers at least a portion of the receiver down for a period of time and that powers up the at least a portion of a receiver to check for incoming data when the selected period of time expires, wherein the control circuit includes a counter that is substantially synchronized with a counter at the source of the incoming data in response to an indication from the data source that a data transmission has ended.

Claim 7 (Canceled)

8. (Original) The communication device of claim 6, wherein the control circuit powers up the receiver to check for incoming data for at least a selected period of time.

9. (Original) The communication device of claim 6, wherein the control circuit selectively powers down the at least a portion of a receiver when a selected period of time after power-up has expired or when a signal indicates that a current data transmission is complete.

10. (Original) The communication device of claim 6, wherein the signal processing circuit comprises a signal processing circuit for a cable modem.

11. (Previously Presented) The communication device of claim 6, further comprising receiving one or more packets, and wherein the control circuit powers up the at least a portion of a receiver in time to allow detection of an attempted retransmission of a packet.

12. (Previously Presented) A communication network, comprising:

a head end communication device;

at least one remote communication device that is communicatively coupled to the head end communication device; and

wherein each of the at least one remote communication device includes a control circuit that powers down a receiver of the at least one remote communication device for

a selected period of time and that powers up the receiver of the at least one remote communication device to check for incoming data from the head end communication device when the selected period of time expires, wherein the control circuit includes a counter that is substantially synchronized with a counter at the source of the incoming data in response to an indication from the head end communication device that a data transmission has ended.

13. (Previously Presented) The communication network of claim 12, wherein each of the at least one remote communication device is powered over the connection between the head end communication device and the at least one remote communication device.

14. (Previously Presented) The communication network of claim 12, wherein each of the at least one remote communication device comprises a cable modem.

15. (Previously Presented) The communication network of claim 12, wherein each of the remote communication device is communicatively coupled to the head end communication device over a communication network.

16. (Previously Presented) The communication network of claim 12, wherein the head end communication device transmits data with a protocol that allows for retransmission of data that is not acknowledged by the at least one remote communication device.

17. (Previously Presented) A power control circuit for a communication device, the power control circuit comprising:

a counter that establishes a selected time period for powering down a receiver of the communication device;

a processor, coupled to the counter, that is programmed to control the reset of the counter, to power down the receiver, and to power up the receiver to check for incoming data packets transmitted by another communication device when the counter indicates that the selected time period has expired; and

wherein the counter establishes a time period that is sufficient to allow detection of a data packet that is retransmitted by the other communication device when no acknowledgment signal is received by the other communication device.

Claim 18 (Canceled)

19. (Original) The power control circuit of claim 17, wherein the processor is programmed to power up the receiver for a selected time period to check for incoming data.

20. (Previously Presented) A method of power management for a communication system that includes at least one head end communication device and at least one remote communication device, comprising:

setting a counter at a remote unit to a predetermined power down period;

checking for an incoming transmission after the power down period has expired;

if an incoming transmission is received, resetting the counter in response to an indication from the head end communication device that the transmission has ended;

if no incoming transmission is received, resetting the counter to the predetermined power down period.

21. (Previously Presented) The method of claim 20 further comprising setting a counter at the head end device to the predetermined power down period upon sending an indication that a transmission to the remote communication device has ended.

22. (Previously Presented) The method of claim 20 wherein the power down period is timed such that the remote unit will power up again in time to detect a retransmission from the head end.

23. (Previously Presented) The method of claim 21 further comprising providing a delay to account for timing variations between the counter at the remote unit and the counter at the head end unit.

24. (Previously Presented) A method for controlling power consumption in a remote communication device in signal communication with a head end communication device, the method comprising:

starting a counter for the remote communication device to time a predetermined power down period;

powering down the remote communication device for the predetermined power down period;

powering up the remote communication device to check for any incoming data;

starting a counter for the head end communication device to time for substantially the same predetermined power down period after completion of a data transmission to the remote.

25. (Previously Presented) A method for controlling power consumption in a remote communication device in signal communication with a head end communication device, the method comprising:

starting a counter at the remote communication device to count for a predetermined power down period after the remote unit has received a transmission of a final packet or other indication that transmission from the head end communication device has come to an end;

starting a counter at the head end communication device at substantially the same time as the remote communication device counter is set;

wherein a substantial synchronization is maintained between the counters.

26. (Previously Presented) A method for controlling power consumption in a remote packet communication device in signal communication with a head end packet communication device, the method comprising:

setting a power down timer for the remote packet communication device to a power down period so that the remote packet communication device will power up again in time to detect a retransmission of data from the head end packet communication device.

27. (Previously Presented) The method of claim 26 wherein the retransmission of data comprises a ring signal.

28. (Previously Presented) The method of claim 26 wherein the retransmission of data comprises a data packet.